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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/531,247	03/21/2000	Jian Qin	11710-0160	7378

7590 09/26/2003

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22

EXAMINER

WILSON, DONALD R

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 09/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/531,247

Applicant(s)

QIN ET AL.

Examiner

Donald R Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 10-19 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 10-12 17-19 21-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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DETAILED ACTION

Status of Application

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/17/03 has been entered.

2. Applicant's election of the species of:

- a. a cross-linked copolymer of isobutylene and maleic anhydride as the super absorbent material,
- b. lauryldimethylamine oxide as the surfactant,
- c. isopropanol as the solvent, and
- d. fiber as the form of the superabsorbent material,

in Paper No. 7 remains in effect. Dependent Claims 7 and 13-16 remain withdrawn from consideration pursuant to 37 C.F.R. § 1.142(b) as being drawn to a none elected specie of the invention.

Response to Amendment

3. Applicant's amendment filed 7/17/03, has been fully considered with the following results.

4. Applicant's argument traversing the rejection under 35 U.S.C. § 112, first paragraph, concerning the structure and chemistry of lauryldimethyl amine oxide is not deemed to be persuasive and the rejection is maintained for reasons discussed below. The amendment to Claim 21 overcomes the separate rejection of this claim concerning processes wherein the superabsorbent material is in a solvated state, and the rejection is withdrawn.

5. The amendment overcomes the rejection of Claim 2 under 35 U.S.C. § 112, second paragraph, concerning the amount of water sufficient to solvate the surface, and in this regard the rejection is withdrawn. The amendment is not deemed to be persuasive in overcoming the remaining rejections under 35 U.S.C. § 112, second paragraph, which are maintained for the reasons discussed below.

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6. Argument's traversing the prior art rejections are not deemed to be persuasive and the rejections are maintained for reasons discussed below.

Previously Cited Statutes

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action .

Objection to New Matter

8. ***The amendment filed 7/17/03 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure*** 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

- a. The amendment to the specification at page 6 specifying the diameters of the fibers as about 20 μm and the lengths as from around one cm to around five cm. The publicly available information in Exhibits A and B, alleged to support this amendment, only defines the typical denier of OASIS fibers to about 10 dtex, which applicant calculates to be about 30 μm , not the about 20 μm inserted in the specification. There is no teaching that the referenced fibers have the indicated lengths. There is only a reference to some unspecified fibers having lengths of about $\frac{1}{4}$ in (~ 0.6 cm).
- b. The amendment to Claim 1 specifying a dimension for the particulate and fibrous superabsorbents. There appears to be no support for this amendment at pages 5-12 as alleged by applicant. If there is any support in the application as filed, the onus is on applicant to specifically point it out.
- c. The amendment to Claim 4 specifying a washing "--- with a solvent to selectively remove of any fugitive surfactant." There appears to be no language in the specification at the cited pages as alleged other than washing to remove any fugitive surfactant

Applicant is required to cancel the new matter in the reply to this Office Action.

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Claim Rejections - 35 USC § 112, First Paragraph

9. ***Claims 1-6, 10-12, 17-19 and 21-23 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.*** The basis of this objection was stated in Detailed Action § 6 of the Office Action of 6/14/02 and has been further discussed in Detailed Action § 6 of the Office Action of 10/07/02, and Additional Comments § 3 of the Office Action of 1/7/03.

10. Applicant's continued traversal concerning the structure and chemistry of lauryldimethyl amine oxide is not deemed to be persuasive for reasons of record. It remains that an amine oxide does not have two functional groups, but rather contains a monofunctional group consisting of a nitrogen oxygen bond wherein the nitrogen has four bonds and a formal positive charge, and the oxygen has a single bond and a negative charge. The chemistry attributed to amine oxides by applicant is simply not supportable.

11. ***Claims 1-6, 10-12, 17-19 and 21-23 are also now rejected under 35 U.S.C. § 112, first paragraph because of the subject matter introduced by amendment which is not supported by the specification as filed.*** The subject matter in question is that discussed in parts (b) and (c) of the objection to new matter.

Claim Rejections - 35 USC § 112, Second Paragraph

12. ***Claims 1-6, 10-12, 17-19 and 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.***

13. The language of Claim 1 is indefinite because the only specifically identified suitable surfactant in the specification does not meet the limitations of what is described as the surfactant in Claim 1. Thus, it becomes unclear as to what the surfactants are. The basis of this rejection was stated in Detailed Action § 10(b) of the Office Action of 6/14/02 and has been further discussed in Detailed Action § 9 of the Office Action of 10/07/02. Applicant's continued traversal of this rejection for the same reasons discussed in the rejection under 35 U.S.C. § 112, first paragraph is not deemed to be persuasive for reasons of record.

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14. Claims 10-12 are indefinite because "floating time" and "a reduction in surface tension of saline less than about 30%" are indefinite unless the conditions of the test, specifically the fiber diameter, is specified. The basis of this rejection was stated in Detailed Action § 12 of the Office Action of 6/14/02 and has been further discussed in Detailed Action § 11 of the Office Action of 10/07/02. Applicant has amended the claims to recite that the material in Claims 10-12 is a fiber, and has also amended Claim 1 to recite that the fiber has a dimension less than about 300 μm . Applicant traverses the rejection based upon these amendments. This is not deemed to be persuasive because the dimensions of the fiber cover a broad range and the material diameter is a dependent variable as applicant has previously acknowledged, i.e. "[a]pplicants understand that the dimension of a superabsorbent material affects total surface area and further its floating time an reduction in surface tension." This clear admission appears to buttress the Examiner's finding, making the metes and bounds of what is being claimed indefinite.

Claim Rejections - 35 USC § 102(b)/§ 103(a)

15. ***Claims 1, 4, 6, 10-12, 19 and 21-23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bashaw.***

16. ***Claims 2-3, 5 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bashaw as applied to Claims 1, 4, 6, 10-12, 19 and 21-23 above, and further in view of Schwarz, Jr., as evidenced by the ACS Registry file.***

17. The bases of these rejections were stated in Detailed Action § 16-19 of the Office Action of 6/14/02 and have been further discussed in Detailed Action § 14-15 of the Office Action of 10/07/02, and Additional Comments § 6 of the Office Action of 1/7/03.

18. As applicant's traversal of both rejections are based upon alleged deficiencies of Bashaw, traversal of the above rejections will be treated collectively.

19. Applicant traverses the rejection arguing that the surface of a commercial superabsorbent fiber is very hydrophobic, indicating that there are almost no available functional groups at the surface to react with the surfactant. This is not deemed to be persuasive because the claims are not restricted to the treatment of commercial fibers or other fibers which have no available functional groups at the surface. As noted by applicant, producing a fiber by drying in hot air can result in making the fiber surface

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hydrophobic. However, other processes of producing fibers such as the coagulation method taught by Bashaw would not be expected to result in such hydrophobic fiber surfaces for reasons previously discussed and/or are obvious. The process of making a fiber from the superabsorbent material by coagulation in methanol as taught by Bashaw qualifies as activating the material by increasing the amount of functional groups at the surface. Further, pulverization of the copolymer in an attrition mill to produce a powder, as in Example 1, or methods of making chopped fibers, would both be expected to result in new surfaces with functional groups at the surface. Additionally, it is also noted as earlier pointed out that Bashaw teaches treating the material in an aqueous solution of a suitable surfactant (col. 2, lines 6-16, and examples). By applicant's own admission, this aqueous by itself would appear sufficient to activate the surface (see for instance instant Claim 2).

20. Applicant's argument traversing the rejection on the basis of the chemistry of the surfactant, i.e., the deprotonation of the surfactant (NR_3H^+), is not deemed to be persuasive because the elected specie of surfactant contains no such group.

21. Applicant's statement that pulverization and coagulation processes may help the newly formed surface become more wettable ---, but that "--- these processes are not applicable for a superabsorbent material that has a surface that is already hydrophobic" is interesting. Clearly applicant's activated surface is a newly formed surface, else it would be the same as the surface prior to activation. The activated surface must be interpreted as the surface after treatment relative to the surface in some prior state.

22. Any further arguments by applicant are not deemed to be persuasive for reasons of record.

Art of Interest/Technological Background

23. As previously stated MacLeay, Gross and Eckert disclose processes of treating superabsorbent particles and may be used in future rejections to non-elected species of the invention.

Future Correspondence

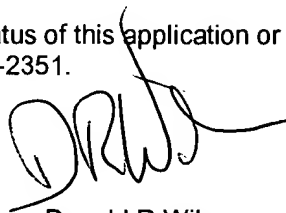
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald R Wilson whose telephone number is 703-308-2398.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 703-308-2450. The fax phone number for the organization where this

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application or proceeding is assigned is 703-872-9306. The unofficial direct fax phone number to the Examiner's desk is 703-872-9029.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-2351.

A handwritten signature in black ink, appearing to read 'DRW', with a long horizontal stroke extending to the right.

Donald R Wilson
Primary Examiner
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